UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VII
901 NORTH 5TH STREET
KANSAS CITY, KANSAS 66101

26 SEP 2003

Valley Park TCE
MOD980968341
8.4

9-26-03

Mr. Edward Galbraith, Director
Hazardous Waste Program
Missouri Department of Natural Resources
Post Office Box 176
Jefferson City, Missouri 65102-0176

Dear Mr. Galbraith:

The Environmental Protection Agency (EPA) has reviewed the "Five-Year Review Report" prepared by the Missouri Department of Natural Resources (MDNR) for the Valley Park TCE site located in Valley Park, Missouri. The EPA concurs with the following two MDNR determinations: 1) For the operable units on the former Wainwright Industries' property, the EPA has determined that the soil and groundwater remedial activities provide effective protection of human health, welfare, and the environment and comply with the 1994 Record of Decision for the site; and 2) For the area-wide operable unit, the fact that the remedy is just now entering the design phase prevents a determination of protectiveness.

Since hazardous substances, pollutants, or contaminants remain at the site at levels which will not allow for unlimited use or restricted exposure, the EPA and/or the MDNR will conduct additional five-year reviews in the future for the Valley Park TCE site.

Sincerely,

Cecilia Tapia
Acting Director
Superfund Division

cc: Jill Bruss, MDNR Superfund Unit

Five-year Review Report

First Five-year Review Report
for the
Valley Park TCE Site
Valley Park
St. Louis County, Missouri

September 2003

PREPARED BY:

Missouri Department of Natural Resources
Hazardous Waste Program
Jefferson City, Missouri

Approved by:

Edward Galbraith
Director
Hazardous Waste Program

Date: 9/22/03

Table of Contents

Attachments

Attachment 1 – Missouri State Operating Permit MO-123021

Figures

Figure 1 Site Location Map

List of Documents Reviewed

Appendix

Comments received from Support Agencies and/or the Community

List of Acronyms

AOC	Administrative Order on Consent
Agencies	Missouri Department of Natural Resources & Environmental Protection Agency combined
ARARs	Applicable or Relevant and Appropriate Requirements
CD/SOW	Consent Decree/Statement of Work
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
Department	Missouri Department of Natural Resources
EPA	United States Environmental Protection Agency
ESD	Explanation of Significant Difference
GETS	Groundwater Extraction and Treatment System
MCLs	Maximum Contaminant Levels
MCLGs	Maximum Contaminant Level Goals
MTBE	Methyl Tertiary Butyl Ether
NCP	National Contingency Plan
NPL	National Priorities List
OU2	Operable Unit 2 - Area-wide Groundwater
O&M	Operation and Maintenance
PCE	Tetrachloroethylene
PCOR	Preliminary Close Out Report
RA	Remedial Action
RAO	Remedial Action Objective
RCRA	Resource Conservation and Recovery Act
RD/RA	Remedial Design/ Remedial Action
RI/FS	Remedial Investigation/ Feasibility Study
ROD	Record of Decision
SDWA	Safe Drinking Water Act
SOW	Statement of Work
TBC(s)	To Be Considered(s)
TCA	Trichloroethane
TCE	Trichloroethylene
VOC(s)	Volatile Organic Compound(s)
Wainwright	Wainwright Industries, Inc.
WOU	Wainwright Operable Unit

Executive Summary

There are three operable units (OU)s for the Valley Park TCE Site, located in Valley Park, Missouri: 1) the soils (OU1) on the property formerly owned by Wainwright Industries, Inc.; 2) the groundwater (OU3) on the property formerly owned by Wainwright Industries, Inc.; and, 3) the Operable Unit 3 (OU2) remedy addresses the area-wide groundwater plume and an additional source on the Valley Technologies' property. To simplify this report, OU1 and OU3 will be discussed together as the Wainwright Operable Unit (WOU).

At the WOU, in 1990, a soil source removal was performed, with residual contamination remaining in the subsurface. The 1994 Record of Decision (ROD) included in-situ soil vapor extraction (SVE), a groundwater extraction and treatment system (GETS) with air stripping, groundwater monitoring, limited soils removal, and deed restriction. Through an Explanation of Significant Differences (ESD) document, air sparging was later removed from the remedy because it was determined that the technology could be counterproductive. Both the GETS and in-situ SVE systems were constructed on schedule, but operation was suspended in 1999 when an off-site contaminant was encountered during startup. By August 2003, modifications allowed both systems to restart.

For OU2, the 2001 ROD included: 1) control of air emissions of contaminants from two industrial wells; 2) source excavation and treatment, using both ex-situ SVE and in-situ SVE technologies, of the soils on the Valley Technologies property; and, 3) groundwater extraction and treatment using air stripping, followed by re-injection. Negotiations with the two responsible parties were unsuccessful in reaching a settlement for implementation of the remedial actions. In 2003, the Environmental Protection Agency (EPA) and the Missouri Department of Natural Resources have retained a consultant to conduct the design process.

This is the first Five-year review for the Valley Park TCE Site and has been conducted as a policy review. Normally, policy reviews are conducted after the completion of construction for the site. The construction completion has not been achieved at this site. In fact, as will be explained in this report, numerous delays have occurred which, technically, would allow for a later trigger date for the Five-year review. However, EPA and the department agreed that the Five-year review should not be delayed. For the purposes of this first review for the site, the trigger date was determined to be the actual start of the construction for the soil source remedy on the WOU, September 22, 1998. This is the date for the approval of the original design for the WOU soil remedy.

The assessment of the Five-year review found that the WOU remedies were constructed in accordance with the requirements of the ROD and the ESD. The WOU systems have not been operational during this Five-year review period, due to an off-site contaminant problem. In August 2003, the WOU remedial systems started and are expected to provide protection as stated in the ROD. No new or significant information was discovered during this review to indicate that the remedy will not function as designed; however, the data during the next Five-year review

period will determine if the system is protective. The OU2 remedy is in the remedial design phase.

At the WOU, the immediate threats have been addressed; thus, exposure pathways that could result in unacceptable risks are being controlled by the remediation of the contaminated groundwater and soils. Groundwater and soil cleanup goals are projected for achievement within the next ten years. At OU2, the design, construction and operation schedule is estimated to take twelve years to reach cleanup goals.

Five-year Review Summary Form

SITE IDENTIFICATION		
Site name Valley Park TCE Site		
EPA ID *(from WasteLAN)*: MOD980968341		
Region: VII	State: MO	City/County: Valley Park, St. Louis

SITE STATUS	
NPL status: Final	
Remediation status: WOU is in startup and OU2 is in design	
Multiple OUs? YES	Construction completion date: Not completed
Has site been put into reuse? YES	

REVIEW STATUS	
Lead agency: State	
Author name: Jill K. Bruss	
Author title: Project Manager	Author affiliation: Missouri Department of Natural Resources
Review period: 08/01/2003 to 09/30/2003	
Date(s) of site inspection: 8/11/2003 & 8/14/2003	
Type of review: XX NPL State-lead	
Review number: First	
XX Actual RA start at OU1	
Triggering action date *(from WasteLAN)*: 9/22/1998	
Due date *(five years after triggering action date)*: 9/22/2003	

* ["OU" refers to operable unit.]

** [Review period should correspond to the actual start and end dates of the Five-year review in WasteLAN.]

Five-year Review Summary Form, continued

Issues:

Three issues were evaluated: 1) operation of GETS for the WOU, 2) operation of the SVE system for WOU, and 3) the design, construction and operation of the remedy for OU2. All three could impact the protectiveness of the remedy. For OU2, the remedial design is underway, thus, it is premature to make a protectiveness determination. For the WOU, operation of the GETS is imperative for the remedy to be protective. An off-site contamination problem delayed operation of the GETS and SVE system; however, the systems were restarted in August 2003.

Recommendations and Follow-up Actions:

None of the above three issues are anticipated to cause the remedy to be unprotective of human health and the environment, if implemented without additional delays. OU2 will progress through the design and construction phases, and the WOU is expected to achieve full operable status. The next Five-year review period will produce operational data upon which to verify if the remedy is protective.

Protectiveness Statement(s):

For the WOU, a protectiveness determination of the remedy cannot be made at this time until further information is obtained. Further information will be obtained by operating the GETS and the in-situ SVE system, and taking appropriate samples to measure the reductions in contaminant levels in the groundwater and soils. The department expects that these actions will take between one to five years to complete, at which time a protectiveness determination will be made as part of the next Five year review process. For OU2, a protectiveness determination of the remedy cannot be made at this time until the remedy is designed and the remedial actions are operating. The department expects that these actions will take between three to five years to complete, at which time a protectiveness determination will be made as part of the next Five year review.

Long Term Protectiveness:

The remedies specified for OUs WOU and OU2 are expected to be protective of human health and the environment. The remedy at the WOU, the GETS and the soil SVE system, will continue to operate until the groundwater is restored to drinking water standards. The remedy at the OU2 will involve cleanup actions of the groundwater, the soil and the air. Again, the goal is for the OU2 remedies to achieve drinking water standards in the aquifer. The effectiveness of the remedial activities will be evaluated during the next Five year review period.

Other Comments: None

Valley Park TCE Site
Valley Park, Missouri
Five-year Review Report

I. Introduction

The purpose of a Five-year review is to determine whether the remedy at a site is protective of human health and the environment. The methods, findings, and conclusions of reviews are documented in Five-year review reports. In addition, Five-year review reports identify issues found during the review, if any, and recommendations to address them.

The Missouri Department of Natural Resources (department) is preparing this Five-year review on behalf of the U.S. Environmental Protection Agency (EPA), pursuant to Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) §121 and the National Contingency Plan (NCP). CERCLA §121 states:

> *If the President selects a remedial action that results in any hazardous substances, pollutants, or contaminants remaining at the site, the President shall review such remedial action no less often than each five years after the initiation of such remedial action to assure that human health and the environment are being protected by the remedial action being implemented. In addition, if upon such review it is the judgment of the President that action is appropriate at such site in accordance with section [104] or [106], the President shall take or require such action. The President shall report to the Congress a list of facilities for which such review is required, the results of all such reviews, and any actions taken as a result of such reviews.*

The department interpreted this requirement further in the NCP; 40 CFR §300.430(f)(4)(ii), which states:

> *If a remedial action is selected that results in hazardous substances, pollutants, or contaminants remaining at the site above levels that allow for unlimited use and unrestricted exposure, the lead agency shall review such action no less often than every five years after the initiation of the selected remedial action.*

The department conducted the Five-year review of the remedial actions implemented at the Valley Park TCE Site, Valley Park, Missouri. This review was conducted by the project manager (PM) for the entire site from August 2003 through September 2003. This report documents the results of the review.

This is the first Five-year review for the Valley Park TCE site and has been conducted as a policy review. Normally, policy reviews are conducted after the completion of construction

for the site. The construction completion has not been achieved at this site. In fact, as will be explained in this report, numerous delays have occurred which, technically, would allow for a later trigger date for the Five-year review. However, EPA and the department agreed that the Five-year review should not be delayed. For the purposes of this first review for the site, the trigger date was determined to be the actual start of the construction for the soil source remedy on the WOU, September 22, 1998. The Five-year review is required as a matter of policy because hazardous substances, pollutants, or contaminants remain at the site for a period of time above levels that allow for unlimited use and unrestricted exposure.

II. Site Chronology

Table 1: Chronology of Site Events	
Event	**Date**
General	
Site Discovery	**7/1982**
City began treating its water supply	**1982**
Final Listing on the NPL	**6/10/1986**
MDNR conducts limited RI/FS	**1987**
City connected to alternate water supply source	**1988**
WOU	
Administrative Order on Consent signed to conduct soil removal on Wainwright Industries' property	**8/7/1990**
Administrative Order on Consent signed to conduct RI/FS	**5/22/1991**
Human Health Risk Assessment for WOU completed	**12/15/1993**
RI/FS completed	**9/29/1994**
Record Of Decision signed for WOU	**9/29/1994**
ESD to ROD	**4/2/1996**
State Consent Decree signed to conduct remedy	**2/28/1996**

Table 1: Chronology of Site Events	
Event	Date
Original Soil and Groundwater Designs completed	9/22/1998 and 9/29/1998
Revised Soil Design completed	3/1999
Soil ex-situ SVE Remedial Action completed	4/1999 to 5/1999
Original GETS startup	Fall 1999
GETS suspension due to offsite contamination	Fall 1999
GETS and SVE systems restart	Summer 2003
Operable Unit 2	
RI/FS	4//17/1997 to 9/26/2001
ROD signed for OU2	9/26/2001
Unsuccessful Negotiations	Fall 2001 to Fall 2002
EPA Design contractor retained	Spring 2003

III. Background

Physical Characteristics

The Valley Park TCE Site (site) is located in the town of Valley Park, Missouri, which is in the Meramec River Valley. Valley Park is approximately 15 miles southeast of the city of St. Louis, in St. Louis County, Missouri. The town of Valley Park consists of primarily residential and commercial/industrial buildings with an approximate population of 4,165. The site is divided into two OUs: the Wainwright Operable Unit (WOU) and the area wide groundwater plume operable unit (OU2). The site is located in the flood plain of the Meramec River.

The WOU addresses the source of soil and groundwater contamination on the property formerly owned by Wainwright Industries, Inc. (Wainwright). The WOU includes Wainwright's former property and adjacent properties. Rays Tree Service currently occupies the former Wainwright property. The OU2 addresses the greater groundwater plume

including an additional source area located at the property owned by Valley Technologies, Inc..

OU2 includes the groundwater plume which spans approximately east of Highway 141, north of the Meramec River, west of 9th street and south of the railroad just north of Leonard Avenue. OU2 involves both commercial and residential properties.

Land and Resource Use

The site, composed of both OUs, is located within the eastern portion of the city of Valley Park, on the east side of Highway 141. Historically, the area includes both residential and commercial properties. The projected future land use for the area will be the same as the historic uses. For cleanup purposes, the requirements for soil and groundwater are based upon residential protection.

The groundwater aquifer underlying the site is not currently used as a drinking water source for the city, although it was 20 years ago. However, numerous commercial operations utilize the aquifer for commercial needs, most notably Reichhold Chemical Company. The groundwater flow direction is toward the commercial wells. If the commercial wells are not operating, then the natural flow direction is east, toward the city of Kirkwood's drinking water well field.

History of Contamination and Initial Responses

Wainwright owned and operated a metal stamping and tool and die shop at the property from 1947 to 1979. Part of the manufacturing process included a solvent degreasing system that used the solvents trichloroethylene (TCE) from 1963 to 1970 and perchloroethylene (PCE) from 1970 to 1979. These chemicals were stored in a 1,000-gallon aboveground storage tank, formerly located directly behind the main building.

Valley Technologies operated two divisions in Valley Park, Missouri: Precision Forgings and Valley Heat Treat, until it began operating as Valley Technologies, Inc. Precision Forgings manufactured aluminum pressings, and Valley Heat Treat provided heat treatment services on metal parts. Valley Heat Treat utilized a degreaser that used the solvent trichloroethane (TCA) for metal processing from 1965 until 1993, when it switched to TCE. Wastes from the degreaser were placed in steel drums and stored on a gravel lot for pickup and disposal. A representative of Valley Technologies estimated that 150 gallons may have spilled over the years.

During a routine sampling in June 1982, one of Valley Park's municipal water supply wells was found contaminated with TCE and PCE and various other chlorinated organic compounds. From April 1983 through March 1986, the department periodically sampled Valley Park's three municipal water supply wells. During that time period, samples from all three wells

showed that TCE concentrations exceeded the maximum contaminant level (MCL) for drinking water as determined by the Safe Drinking Water Act (SDWA). Elevated concentrations of PCE and other chlorinated organic compounds were also detected in these wells. After learning of the contamination, the city of Valley Park first aerated the water to remove the contaminants, then, subsequently, abandoned the wells and began buying water from the St. Louis County Water Company.

A limited Remedial Investigation (LRI) was conducted by the department in 1987 to determine the extent and sources of the chlorinated hydrocarbon contamination and to characterize the contamination of the Valley Park groundwater.

The site was listed on the National Priorities List (NPL) in 1986. In 1990, through an administrative order (AOC) with EPA, Wainwright agreed to perform a soil removal on its property to 20 parts per million for PCE. Wainwright could not meet the cleanup level, and requested that the AOC be suspended. To comply with the removal suspension, Wainwright agreed to conduct a remedial investigation and feasibility study (RI/FS) on their property. In July 1994, the RI/FS for WOU was completed and in September 1994, the Record of Decision (ROD) was issued.

The department conducted two groundwater-sampling events in May and November 1995 and are considered the beginning of the RI for OU2. Negotiation efforts with Wainwright and Valley Technologies were unsuccessful, in developing an agreement to conduct the full RI/FS. Thus, the department conducted the RI/FS for OU2 from 1997 to 2001. The study concluded with the 2001 ROD for OU2.

Basis for Taking Action

The following is a list of the hazardous substances which have been released at the two operable units. Contamination, predominantly TCE and PCE, was detected in various media including the Valley Park public drinking water supply, two soil sources, and various groundwater wells located throughout the site.

Groundwater: Barium, Manganese, Methylene Chloride, PCE, TCE, TCA

Soil: Benzo(a)pyrene, PCE, TCE, TCA

IV. Remedial Actions

Remedy Selection

WOU

The ROD for the WOU was signed on September 29, 1994. The ROD selected an interim action to address contamination sources - both soil and groundwater. The remedial action objectives for the WOU were identified as 1) eliminate the soil source contaminating the groundwater, and 2) hydraulically control and eliminate the groundwater contamination located onsite. The major components of the remedy selected in the WOU ROD include the following:

1. Soil vapor extraction (SVE) throughout the identified areas of Volitile Organic Compounds (VOC) contaminated soil;

2. PAH contaminated surface soils; excavating and removal to a treatment facility off the WOU.

3. Groundwater extraction and treatment system to hydraulically control the entire vertical section of the aquifer and restore to MCLs the impacted groundwater underneath the WOU; Air stripping to treat the groundwater before discharging to the sewer system;

4. Air sparging initially specified to enhance the groundwater cleanup process, however subsequetnly removed through an ESD due to concerns that the air-sparging could be counterproductive;

5. A deed restriction placed on the WOU properties to prohibit the installation and operation of groundwater supply wells; and,

6. Groundwater monitoring including existing and new groundwater monitoring wells to assess the effectiveness of the remediation.

OU2

The ROD for the OU2 was signed on September 26, 2001. Remedial action objectives were developed as a result of the data collected during the RI to aid in the development and screening of remedial alternatives to be considered for the ROD. The RAOs were identified as 1) remove the soil source on the Valley Technologies' property; 2) hydraulically control and remove the groundwater contamination located beneath the Valley Technologies' property; and 3) control air emissions of contaminants emitted from commercial wells located within the contaminated aquifer.

The major components of the remedy selected in the ROD include:

1. On Valley Technologies' property, excavation of shallow soils and treatment using ex-situ SVE;

2. On Valley Technologies' property, in-situ SVE to remediate deep contaminated soils;

3. On Valley Technologies's property, groundwater extraction and treatment, using air stripping, to hydraulically control the impacted groundwater and to achieve drinking water standards in the aquifer. The treated water will be re-injected downgradient to help in preventing migration of contaminants toward Kirkwood;

4. An institutional control on the Valley Technologies' property to prohibit installation and operation of wells until the aquifer is clean;

5. Groundwater monitoring to assess effectiveness of the soil and groundwater treatment systems; and,

6. Installation of air emission controls on commercial wells using the contaminated aquifer.

Remedy Implementation

WOU

Following the signing of the ROD, the department began negotiations with Wainwright to conduct the specified soil and groundwater remedial actions. During those negotiations, Wainwright and the department, with EPA's concurrence, agreed to modify the ROD as documented in an April 1996 ESD. The most significant modifications included 1) the treated groundwater could be discharged into the storm sewers rather than the sanitary sewers, 2) air sparging would be eliminated, and, 3) on-site, ex-situ SVE would be used to treat excavated soils rather than in-situ SVE.

A deed restriction was placed on the Wainwright Property in the fall of 1996, which prohibited any installation of wells or use of groundwater on the property.

The design of the soils remedy was originally approved in September 1998. The approved design involved constructing and operating an ex-situ SVE system located within the building on the Wainwright property. Contaminated soil would be excavated and placed in the SVE system. Design details were presented to the public in an availability session hosted by the department. City representatives and some residents living adjacent to the former Wainwright property expressed concerns about treating contaminated soil in the building. The main concern was that a flood could wash contaminated soil out of the building and onto neighboring properties. The department's previously mentioned design approval included requiring Wainwright to develop a flood contingency plan listing measures to be taken to prevent the release of soils from the building. In the fall of 1998, Wainwright proposed addressing the public's concerns by changing the ex-situ SVE process from a fixed treatment cell design located within the building to a steam-enhanced mobile unit. The new approach would complete the cleanup within a couple months rather than a couple years. As a result, the potential for flooding complications would be reduced

significantly. The proposal was accepted by EPA and the department, and the redesign was approved in March 1999.

In 1999, approximately 600 cubic yards of contaminated soil was treated using ex-situ SVE, and the groundwater extraction and treatment system (GETS) was constructed and started. However, in December 1999, during routine sampling, the department discovered methyl tertiary butyl-ether (MTBE) in the GETS influent and effluent streams, resulting in suspension of operation until the MTBE source could be investigated.

Extensive delays occurred due to the MTBE complication. Essentially, the source of the MTBE was identified but the responsible party was not cooperative in remediating the problem. Wainwright's concern was the potential for the GETS drawing the MTBE plume onto the WOU; thereby, exacerbating the MTBE contamination. Numerous design submittals followed exploring various possible solutions to addressing the WOU and MTBE contamination. This process spanned several years. In 2003, all parties agreed on an approach to modify the air stripper system and to reduce the extraction flow in an effort to restart the GETS with minimal influence on the MTBE plume. By July 2003, an approved design was in place, and the GETS was restarted on August 11, 2003. Initial influent and effluent samples indicate effective removal of contaminants by the air stripper and minimal MTBE complications. The GETS became operational on August 21, 2003.

OU2

As stated previously, the OU2 is currently in the remedial design phase. There has been no progress towards implementation.

System Operations/Operation and Maintenance (O&M)

WOU

Operations and Maintenance (O&M) plans for the GETS, and SVE system were recently approved, during the summer of 2003. Since the systems haven't been operational, no official O&M has been undertaken at the site. The systems are expected to be fully operational by the end of September 2003 at which time O&M will begin. The O&M plans will set forth system procedures and equipment maintenance procedures to be implemented for effective day to day and long term operation. The primary activities associated with O&M include the following:

Remedial system descriptions;

- Normal operating, inspection, and maintenance procedures and schedules;
- Potential operating problems and operation troubleshooting;

- Equipment monitoring and inspection requirements:
- Monitoring requirements to ensure appropriate operation and maintenance of the recovery and treatment systems:
- Contingent corrective action provisions: and
- Record keeping and reporting requirements to include personnel and safety.

O&M cost data is not available.

OU2

As stated previously, the OU2 remedy is in the remedial design phase and will have an O&M plan in place upon implementation of its remedial action. Correspondingly, no cost data is available.

V. Progress Since the Last Review

This was the first Five-year review for the site.

6. Five-year Review Process

Administrative Components

The Five-year review was conducted by Jill Bruss of the department, a project manager. Steve Auchterlonie of the EPA assisted in the review as the representative for the support agency.

The review included the following components:

- Community Involvement
- Document Review
- Data Review
- Site Inspection
- Local Interviews, and

- Five-year Review Report Development and Review

The review schedule extended through September 2003.

Community Involvement

A public comment notice was run in the St. Louis newspaper on August 27, 2003, stating that the Five-year review was taking place. After the five-year review is completed, the department will host an availability session at the Public Library in Valley Park, Missouri. The availability session will share information about the Five-year review. A copy of the report will be made available in the site's administrative record.

Document Review

This five-year review consisted of a review of relevant documents including the early decision documents and available monitoring data. Applicable groundwater cleanup standards, as listed in the 1994 and 2001 RODs, were reviewed.

Data Review

Only startup data exists for the WOU, due to the suspension of the GETS. The MTBE contamination rendered the original WOU startup data useless. Data from the recent restart of the WOU systems indicates that the remedial actions operate as designed.

There will not be data for OU2 until the remedial actions are designed and constructed.

Site Inspection

Site inspections were conducted on August 11, and 15, 2003. The site inspections were combined with sampling for restart of the SVE and Groundwater Treatment System for the WOU. For the WOU, the restart was successful resulting in operation of the treatment systems. As a result, no significant issues regarding the remedial systems were noted.

For OU2, the site inspection did not identify any significant issues which vary from the 2001 ROD.

Site Interviews

Site interviews were not conducted specifically for this five-year review; however, conversations have taken place routinely over the past five years between representatives of the EPA, the department, Wainwright Industries, Valley Technologies, and the city of Valley Park.

Question A: Is the remedy functioning as intended by the decision documents?

For the WOU, the treatment systems began operating in August 2003. The GETS was originally in operation for a couple months until MTBE was detected in the treatment system influent and effluent. The original design of the GETS did not account for MTBE.

The in-situ SVE system has not operated as intended due to design disagreements between Wainwright and the government agencies. A design, approved in the summer of 2003 for the SVE system, has recently been implemented, including a six month pilot test for the silty-clay unit. The final design for full operation of the SVE system will be determined after the pilot test, which ends in the winter of 2003.

For OU2, the project is just entering the design phase; therefore, no technical assessment can be made. The tentative schedule for completion of these activities is the fall or winter of 2005.

Question B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives (RAOs) established at the time of remedy selection still valid?

There have been no changes in the physical conditions of the site that would affect the protectiveness of the remedies. The MTBE contamination complicated the implementation both legally and technically, and resulted in a delay of several years. However, the technical issues have been resolved by making adjustments to the GETS.

Changes in Standards and To Be Considered (TBC)

The Applicable or Relevant and Appropriate Requirements (ARAR)s still must be achieved. As specified in the two RODs, there have been no changes in those ARARs and no new standards or TBCs affecting the protectiveness of the remedy. One additional groundwater standard pertains to the MTBE contaminant. Standards for MTBE are set by the State of Missouri. The limit set for MTBE is 20ppb and attachment 1 is a copy of the Missouri State Operating Permit for reference.

Changes in Exposure Pathways, Toxicity, and Other Contaminant Characteristics

The exposure assumptions used to develop the Human Health Risk Assessment included both current and potential future exposures. The only change from the Human Health Risk Assessment was the addition of MTBE that was found in the system effluent. The air and groundwater risks were updated to include MTBE. The groundwater treatment system was altered to treat the groundwater to below any risk levels for MTBE - both in water effluent and air emissions. Some system changes have been made from the original remedial design for both the SVE and GETS. The original design specified the use of carbon treatment for both SVE emissions and groundwater treatment system emissions; however carbon treatment is not

the SVE and GETS. The original design specified the use of carbon treatment for both SVE emissions and groundwater treatment system emissions; however carbon treatment is not required due to the lower flows. At the current flow rates, computer modeling and field-verified sampling support that the emissions are acceptable as compared to health standards.

Question C: Has any other information come to light that could call into question the protectiveness of the remedy?

There is no other information that calls into question the protectiveness of the remedy. There have been major delays in the project, although all remedial components for the WOU are currently in operation. The data collected during the next five-year review period will document whether the system is functioning properly, resulting in protectiveness. OU2 is currently in remedial design, and cannot be evaluated for its protectiveness. There are no newly identified ecological risks and there are no impacts from natural disasters.

Technical Assessment Summary

For the WOU, the remedy is operating as specified in the ROD, and as modified by the ESD. Additional treatment actions may be added to existing systems when the pilot test for the clay unit SVE system is completed in the next six months. The next five-year review period will produce data to verify the protectiveness of the system. At this time, it appears that the system, if operated continuously without any additional delays, will not be protective.

The OU2 is currently in the design phase, so no technical assessment can be made.

VIII. Issues

Three issues were evaluated. All three could have potential impacts on the protectiveness of the remedy: 1) for OU2, the design is underway and, assuming there are no unforeseen delays, the remedy will be implemented as listed in the ROD; 2) for the WOU, full operation of the SVE treatment system is imperative for the remedy to be protective; and, 3) for the WOU, operation of the GETS cannot incur additional delays. For OU2, the remedial design is underway, thus it is premature to make a protectiveness determination.

Table 2: Issues

Issues	Affects Current Protectiveness (Y/N)	Affects Future Protectiveness (Y/N)
OU2- Completion of the Remedial Design & Action	Y	Y
WOU- Operable Groundwater Pump & Treat System	Y	Y
Fully Operable SVE system	Y	Y

IX. Recommendations and Follow-up Actions

For all three issues addressed above, none are anticipated to cause the remedy to be unprotective of human health and the environment, unless future delays occur. OU2 continues to progress in the design phase at this time, and, for the WOU, both treatment systems are operational. The next five year review period will produce data to verify the protectiveness of the remedial actions.

X. Protectiveness Statement(s)

The remedy for WOU was implemented last month, August 2003. For OU2, the remedial action is in the design phase. Once operational, the remedies for both operable units at the Valley Park Site are expected to be protective of human health and the environment. The remedy at the WOU, a pump and treat groundwater system and a soil SVE system, will continue to operate until the groundwater is restored to MCLs. The projected time frame to achieve this goal is ten years after full operation starts. The remedy at the OU2 is expected to be protective upon implementation. Currently, the design for OU2 is underway and the remedial actions are

scheduled to be operational during 2005. The effectiveness of the systems will be evaluated during the next five year review period.

Long-term protectiveness of the remedial action will be verified by monitoring both the groundwater, soil and air treatment systems.

XI. Next Review

The next five-year review for the Valley Park TCE Site is required by September 2008, five years from the date of this review.

Attachments

STATE OF MISSOURI

DEPARTMENT OF NATURAL RESOURCES

MISSOURI CLEAN WATER COMMISSION

MISSOURI STATE OPERATING PERMIT

In compliance with the Missouri Clean Water Law, (Chapter 644 R.S. Mo. as amended, hereinafter, the Law), and the Federal Water Pollution Control Act (Public Law 92-500, 92nd Congress) as amended,

Permit No.	MO-0123021
Owner:	Wainwright Industries, Inc.
Address:	17 Cermak Blvd., St. Peters, MO 63376
Continuing Authority:	Same as above
Address:	Same as above
Facility Name:	Wainwright Operable Unit
Address:	224 Benton Avenue, Valley Park, MO 63088
Legal Description:	NW ¼, SW ¼, Sec. 17, T44N, R5E, St. Louis County
Receiving Stream & Basin:	Storm sewer to Meramec River (U)
First Classified Stream and ID:	Meramec River (P) 02183
USGS Basin & Sub-watershed No.:	(07140102-080003)

is authorized to discharge from the facility described herein, in accordance with the effluent limitations and monitoring requirements as set forth herein:

FACILITY DESCRIPTION

Outfall #001 - Ground-Water Remediation Treatment Unit - SIC #3499
Design population equivalent is 2,376.
Design flow is 165 gallons per minute. (237,600 gallons per day)

This permit authorizes only wastewater discharges under the Missouri Clean Water Law and the National Pollutant Discharge Elimination System; it does not apply to other regulated areas. This permit may be appealed in accordance with Section 644.051.6 of the Law.

July 2, 1999 — Effective Date
June 13, 2003 — Revised

Stephen M. Mahfood, Director, Department of Natural Resources
Executive Secretary, Clean Water Commission

July 1, 2004 — Expiration Date

Jim Hull, Director of Staff, Clean Water Commission

MO 780-0041 (6-93)

C. SPECIAL CONDITIONS (continued)

2. All outfalls must be clearly marked in the field.

3. Permittee will cease discharge by connection to areawide wastewater treatment system within 90 days of notice of its availability.

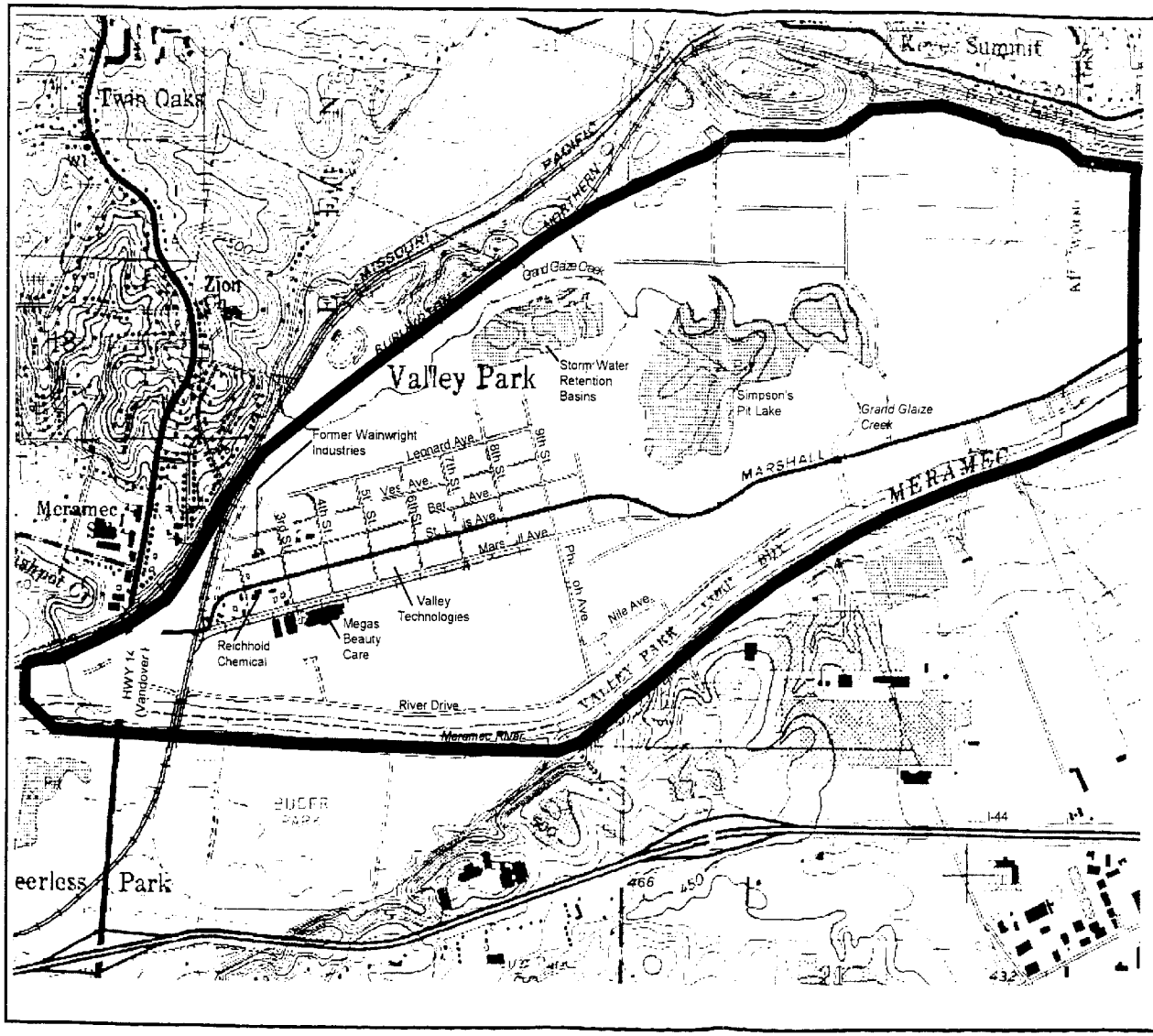
4. Changes in Discharges of Toxic Substances

The permittee shall notify the Director as soon as it knows or has reason to believe:
(a) That any activity has occurred or will occur which would result in the discharge of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels:"
  (1) One hundred micrograms per liter (100 µg/L);
  (2) Two hundred micrograms per liter (200 µg/L) for acrolein and acrylonitrile; five hundred micrograms per liter (500 µg/L) for 2,5 dinitrophenol and for 2-methyl-4, 6-dinitrophenol; and one milligram per liter (1 mg/L) for antimony;
  (3) Five (5) times the maximum concentration value reported for the pollutant in the permit application;
  (4) The level established in Part A of the permit by the Director.
(b) That they have begun or expect to begin to use or manufacture as an intermediate or final product or byproduct any toxic pollutant, which was not reported in the permit application.

5. Report as no-discharge when a discharge does not occur during the report period.

6. General Criteria. The following water quality criteria shall be applicable to all waters of the state at all times including mixing zones. No water contaminant, by itself or in combination with other substances, shall prevent the waters of the state from meeting the following conditions:
(a) Waters shall be free from substances in sufficient amounts to cause the formation of putrescent, unsightly or harmful bottom deposits or prevent full maintenance of beneficial uses;
(b) Waters shall be free from oil, scum and floating debris in sufficient amounts to be unsightly or prevent full maintenance of beneficial uses;
(c) Waters shall be free from substances in sufficient amounts to cause unsightly color or turbidity, offensive odor or prevent full maintenance of beneficial uses;
(d) Waters shall be free from substances or conditions in sufficient amounts to result in toxicity to human, animal or aquatic life;
(e) There shall be no significant human health hazard from incidental contact with the water;
(f) There shall be no acute toxicity to livestock or wildlife watering;
(g) Waters shall be free from physical, chemical or hydrologic changes that would impair the natural biological community;
(h) Waters shall be free from used tires, car bodies, appliances, demolition debris, used vehicles or equipment and solid waste as defined in Missouri's Solid Waste Law, section 260.200, RSMo, except as the use of such materials is specifically permitted pursuant to section 260.200-260.247.

Figures



VALLEY PARK
TRICHLOROETHYLENE (TCE) SITE

EXPLANATION

Site Boundary

N

0 1000 Feet

Source: Kirkwood, MO 7.5' Quadrangle USGS, 1982 and Groundwater Sampling Report, Valley Park TCE Site, OU2 Valley Park, MO, St. Louis County, 1998

ecology and environment, inc.

Figure 1

List of Documents Reviewed

The following documents were reviewed in completing the five-year review:

Record of Decision (ROD) including all attachments.
Consent Decree/Statement of Work (CD/SOW).
Remedial Action (RA) construction documents.
Remedial Action (RA) Operation and Maintenance (O & M) Plan.
100% Remedial Design (RD) Document Package.
Quarterly Hydraulic Performance Control Reports.
Annual Reports.
Other guidance and regulations to determine if any new applicable or relevant and appropriate requirements (ARARs) relating to the protectiveness of the response actions that have been developed.

Appendix

Comments received from Support Agencies and/or the Community

No comments were received from the community and comments from EPA have been incorporated into this Five year review document.